Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendment and following remarks.

Thus, claim 5 has been amended in response to the objection to this claim as set forth on page 2 of the Office Action, as a result of which this objection has been rendered moot.

New claim 8 has been added to the application, and is directed to a pH range of 4 to less than 7, which as can be seen from the attached Declaration (discussed below in connection with the prior art rejection), is a particularly preferred pH range for the present invention. In terms of support in the application as filed for this pH range, as noted in original claim 4, the pH range can be 2 to less than 7. Original claim 5 calls for a pH range of 2 to 4. New claim 8 is directed to a pH of 4 to less than 7. There is no doubt from the application as filed that Applicants considered the pH to be an important factor in their invention, for instance, as illustrated by Example 2, including Table 3 and Fig. 3. In consideration of these factors, together with the discussion of range limitations in MPEP 2163.05, Section III, Applicants take the position that the specification meets the written description requirement of the first paragraph of 35 U.S.C. §112, with respect to new claim 8.

The patentability of the presently claimed invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 1-3 and 5-7 under 35 U.S.C. §103(a) as being unpatentable over Ahmad in view of Elsser et al. is respectfully traversed.

Considering the Response to Arguments section beginning on page 5 of the Office Action, it is clear that the Examiner understands the differences between each of the references and the presently claimed invention, and accordingly, Applicants have endeavored to show, by presentation of a new Rule 132 Declaration submitted herewith, that the present invention attains an excellent effect (high production yield of Ascopyrone P) which is hardly expected from the methods disclosed by the references, so as to overcome the rejection under 35 USC 103(a).

Ahmad discloses a method for producing Ascopyrone P, which comprises treating an aqueous solution of 1,5-D-anhydrofructose with an aqueous alkaline solution such as NaOH at a temperature of 25°C.

Elsser et al. disclose a method for producing Ascopyrone P, which comprises heating a solution of 1,5-D-ahydrofructose with non-aqueous acid at an elevated temperature, for example, 70°C.

Experiments were conducted on the following methods by combining the method of Ahmad and the method of Elsser et al. The results are set forth in the enclosed Declaration.

i) When an experiment was conducted on the method of Ahmad (neutral to alkaline, 25°C) by changing the pH and reaction time, the results shown in the lower rows of Table C-1 in the Declaration were obtained. The maximum production yield of Ascopyrone P (production yield of Ascopyrone P from 1,5-D-anhydrofructose) when treating at a pH of 7.5 to 13.3 for 5 to 1620 minutes (27 hours) was 4.1 % (pH = 13.3, 40 minutes).

ii) When an experiment was conducted on the method of Ahmad (neutral to alkaline) at an elevated temperature shown in Elsser et al. by changing the pH and the reaction time, the results shown in the lower rows of Tables C-2 to C-8 in the Declaration were obtained. The maximum production yield of Ascopyrone P at a pH of 7.5 to 13.3 and a temperature of 50 to 130°C was 7.5 % (pH = 13.3, 50°C, 2.5 minutes).

iii) When an experiment was conducted on the method of Ahmad (neutral to alkaline) by changing the pH to an acidic range, the results shown in the upper rows of Tables C-1 to C-4 in the Declaration were obtained. The maximum production yield of Ascopyrone P at a pH of 2.2 to 6.9 and reaction temperature of 25 to 90°C was 23.5 % (pH = 4.0, 180 minutes).

iv) The maximum production yield of Ascopyrone P at a pH of 2.2 to 6.9 and a reaction temperature of 100 to 130°C (the method of the present invention) was 35.7 % (pH = 4.0, 5 minutes). The production yield of Ascopyrone P at a reaction temperature of 100°C and a reaction time of 120 minutes was 27.0 % (pH = 4.0) (see the upper rows of Tables C-5 to C-8 in the Declaration).

As described above, under the alkaline to neutral condition described and shown by Ahmad, Ascopyrone P cannot be obtained at a high yield. Even when the acidic condition and the elevated temperature such as 70°C in the method of Elsser et al. are applied in the method of Ahmad, Ascopyrone P cannot be obtained at a high yield of more than 25 % in a short period of time.

In contrast to this, in the method of the present invention, which is carried out at a pH of 2 to less than 7 and a temperature of 100°C or higher, Ascopyrone P can be obtained at a high yield of more than 25 % in a short period of time, for example, 5 minutes.

Since it is apparent from the results of the above experiments that Ahmad and Elsser et al. fail to teach that Ascopyrone P can be produced at a high yield of more than 25 % by combining the ~~above~~ pH condition and reaction temperature as described above, Applicants take the position that even **if** the Examiner has established a presumption of obviousness based on these references, such presumption has been overcome by the showing of unexpected superior results achieved in accordance with the present invention.

For these reasons, Applicants respectfully submit that the present invention as claimed is clearly patentable over the applied references.

Therefore, in view of the foregoing amendment and remarks, it is submitted that each of the grounds of objection and rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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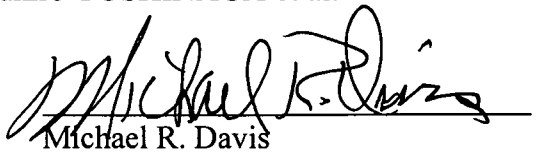
By: 

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